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Attorney's Docket No.: 10417-006001 / S21-
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REMARKS

This Reply is responsive to the Office Action mailed 12/11/2002, which was a non-final rejection of all then-pending claims (Nos. 1-4, 8-10, 17 and 19) based on a newly cited, principal prior art reference (Kwon et al).

While that Office Action acknowledges the filing of Applicants' appeal brief and its entry on September 25, 2002 (p. 2, top), and relies on a new principal reference (Kwon et al), that Office Action does not expressly withdraw the prior rejections and does not expressly reopen prosecution. (MPEP § 1208.2) Based on the facts that the latest Office Action does not repeat the earlier grounds of rejection, relies on a new principal reference and is non-final, and on a telephone conversation with the Examiner (noted further below), we understand that the prior rejections have been withdrawn and prosecution before the Examiner has been reopened.

Applicants thank the Examiner for withdrawal of the prior rejections and for his cooperation in advancing the prosecution of this case.

In March, 2003, one of Applicants' attorneys, John B. Pegram, had two or three short telephone conversations with Examiner Rao to determine the status of the application and appeal, and to arrange for a telephone interview. On Tuesday, March 25, 2003, Mr. Pegram and Examiner Rao conducted a telephone interview. Possible structural limitations suggested by Applicants to more particularly point out and distinctly claim Applicants' invention, somewhat similar to those presented by this Reply, were discussed. Applicants' attorney also explained that dependent claims 3 and 4 would be amended to more clearly state them in device form. Examiner Rao explained his application of the Kwon et al reference. No agreement was reached. Examiner Rao suggested several areas in the Specification that might be the basis for additional limitations. Applicants' attorney concluded by thanking Examiner Rao for his comments and suggestions, and stating that an amendment would be prepared and filed following consultation with Applicants' Assignee.

Claims have been amended and claims 20 to 32 have been added to more particularly point out and distinctly claim Applicants' invention.

Claims 1-4, 8-10, 17 and 19-32 are under consideration.

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The Present Application

For simplicity, Applicants have focused on the difference between the drift regions in Kwon et al and the present application. For example, Applicants point to the following drift regions, gates and drains depicted and described in the present application:

Figs. 1, 5 & 8

drift region 22

gate 7

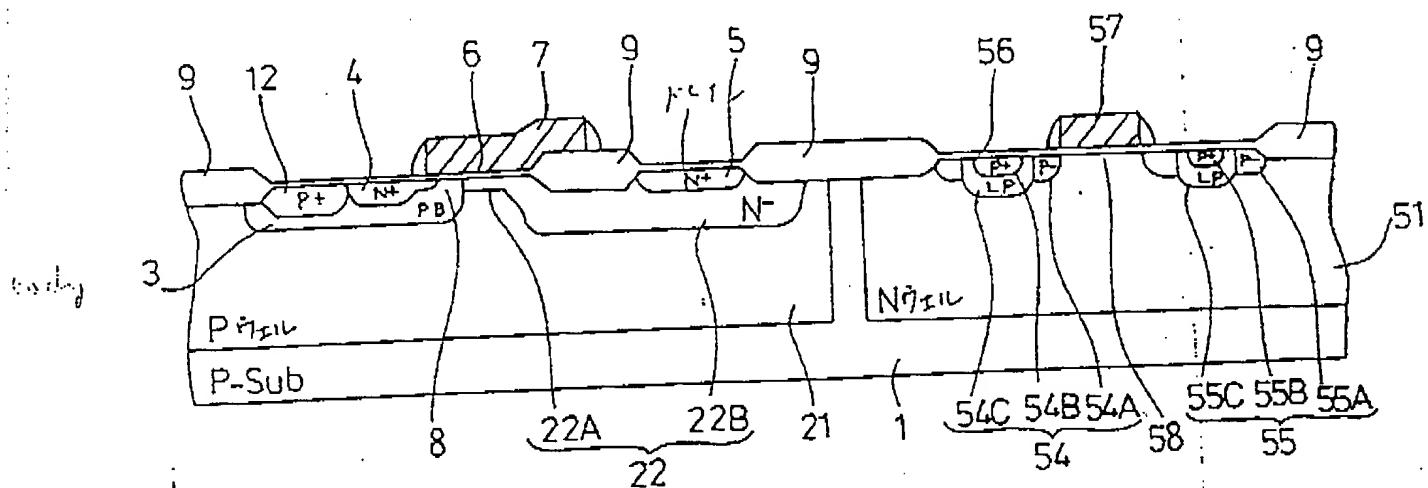
drain 5

As seen in these drawings, the drift region is formed shallowly under a substantial part of the gate and more deeply under the drain. See, for example, Fig. 1, reproduced below:

FIG. 1

(A)

(B)



[Application Fig. 1]

As explained with respect to Figs 2A, 3A and 3B, the region 22 is first formed at a full, uniform depth (Fig. 2A), the left part 22A of the drift region is then made shallower by implantation and diffusion of opposite type dopant into that part 22A. Then, gate 7 is formed over the shallow part. (Page 5, lines 2 -22) In terms of the device, the shallow part of diffusion layer, having a uniform depth, has been intentionally placed under the gate. The present application teaches that the disclosed and claimed structure is intended to produce an "improved RESURF effect." (See, e.g., page 4, line 28 - page 5, line 1; page 6, lines 16-19)

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Applicants do not admit that the rejections are appropriate with respect to other aspects of the claimed invention; however, Applicants expect that other issues would be rendered moot by resolution of the drift region subject.

The Kwon et al Reference

The Office Action has cited Kwon et al with respect to all pending claims, as disclosing a drift region formed shallowly at least below the gate electrode, citing the following:

Fig. 4 drift region 43 gate 44 drain 47

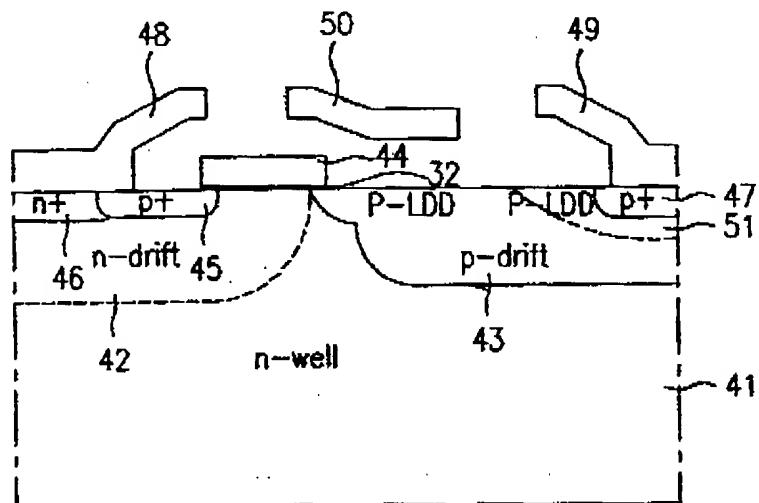
(See *Office Action*, p. 2, line 21 – p.3, line 4. See also page 3, lines 6-15 regarding Fig. 1)

See also the following other drawings in Kwon et al.:

Fig. 1	drift region 3	gate 4	drain 7
Fig. 2	drift region 13	gate 14	drain 17
Fig. 3	drift region 23	gate 24	drain 27

Fig. 4 of Kwon is reproduced below:

FIG. 4



[Kwon Fig. 4]

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In Kwon et al, the regions, cited by the Examiner, are merely the small amount of diffusion that occurs at a non-uniform depth at the edge of any diffusion mask, in this case the gate. See Figs 1, 2, 3 and 4, described at 1/53-55, 2/10-13, 4/6-8, 4/67 - 5/3, 5/27-30. Kwon et al discloses the use of gate 24 as a mask in forming the edge of the region cited by the Office Action, so that the gate and that region are "self-aligned." (Col. 6, lines 17-30)

Also, the region extending under the gate edge is described as lightly doped. See Kwon, 4/6-8, 4/61-64, 5/22-24.

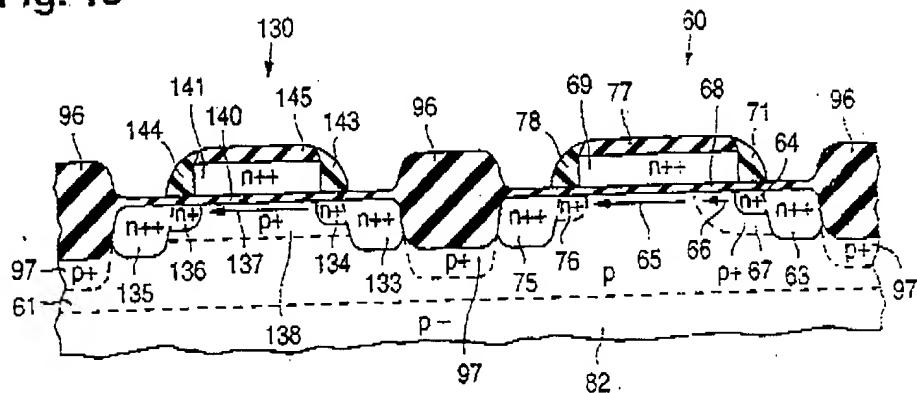
Bulucea et al

We point out that the point out that the currently cited disclosure of Kwon et al is somewhat similar to the disclosure of Bulucea et al, the basis for the rejection that was withdrawn following the filing of Applicants' appeal brief. That now-withdrawn rejection relied on the disclosure in Bulucea of:

Fig. 13 drift region 136 gate 141 drain 135

(See Office Action mailed 12/4/2001, page 3, lines 23 to 28) That Office Action asserted that Fig. 13 of Bulucea et al discloses "the drift region (136) formed shallowly at least below the gate electrode but more deeply in the neighborhood of the drain region...." Fig. 13 of Bulucea et al is reproduced below:

Fig. 13



[Fig. 13 of Bulucea]

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In Bulucea et al, like Kwon et al, the regions cited by the Examiner are merely the small amount of diffusion that occurs at a non-uniform depth at the edge of any diffusion mask. *See* Bulucea, Figs 6, 7, 13 and 14, described at 6/31-40, 11/6-11, 20/5-8. Bulucea specifically states that "source extension 64 normally does not perform a useful operational function." 11/8-9. Also, the region extending under the gate edge is described as lightly doped. *See* Bulucea, regions 64 and 136, 11/6-11, 20/5-6. Thus, the present Applicants submit, persons of ordinary skill in the art would understand that in Kwon et al, like Bulucea et al, the region formed at the gate edge would not normally perform a useful operational function.

Other aspects distinguishing Applicants' claimed invention from of Bulucea et al were discussed in Applicant's Appeal Brief, but are not discussed further here because the rejections based on Bulucea et al have been withdrawn.

The Section 102(e) Rejections

Claims 1-2, 8 and 19 were rejected under 35 U.S.C. § 102(e) as anticipated by Kwon et al. Applicants submit that those claims, as they were before the current amendment and as amended, are not anticipated by Kwon et al because they are distinguished in several respects.

As explained above, Kwon et al does not disclose or teach a drift region which is formed shallowly below a gate and deeply in the neighborhood of a drain. Rather, Kwon et al discloses that the region cited in the Office Action is formed adjacent a gate, using the gate as a mask.

Further, Kwon et al does not disclose the cited drift region as being under a substantial part of the gate or as having a substantially uniform depth under the gate.

The citation of Kwon et al does not satisfy the strict legal requirement for anticipation, which requires that the cited reference disclose the same invention as claimed.

The Section 103(a) Rejections

Claims 3-4, 9-10 and 17 were rejected under 35 U.S.C. § 103(a) as obvious from Kwon et al in view of Blanchard et al. The latter patent was previously cited as a combination reference

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with Bulucea et al prior to Applicants' Appeal. The current rejection also suggested that claims 3 and 4 be placed in better form, without process limitations.

Claims 3 and 4 have been placed in better form as device claims.

The Office Action fails to establish a *prima facie* case of obviousness of the rejected claims, either before or after amendment, in several respects. First, Kwon is not a pertinent reference for the reasons stated above. Further, the Office Action fails to point out any teaching or suggestion in the cited references which might lead a person of ordinary skill in the art to combine the references. (We also caution against application of the Examiner's skill, which is above the "ordinary" level: a Masters degree and several years examining experience, which provides intensive experience in the art.)

The Office Action does not identify the alleged pertinence of Blanchard et al to claims 3, 4 and 17. It admits (at page 6) that "Kwon does not specifically mention a second conductivity type well region." We point out that Kwon et al also does not implicitly refer to such a region.

The only argument in the Office Action for combining Blanchard et al with Kwon et al is in the case of claims 9 and 10, where the Office Action says that the cited references are from the "same field of endeavor." That sweeping argument does not justify saying that their combination would be obvious.

Other distinctions of Blanchard et al are stated in Applicants' Appeal Brief.

For all of these reasons, none of the pending claims is obvious from the cited references.

New claims 20 to 32 have been added. Support for the claims are found in the specification and the drawings. The Examiner has suggested additional limitations to be added and these limitations are claimed and supported as follows: claim 24 supported at page 16, lines 4 and 5; claim 25 supported at page 17, lines 8 to 10; claim 26 supported at page 18, lines 25 to 29; claim 27 supported at page 18, lines 1 to 5; claim 28 supported at page 19, lines 9 and 10; claim 29 supported at page 19, lines 9 and 10 and lines 19 and 20; claim 30 supported at page 21, lines 24 and 25; claim 31 supported at page 25, lines 9 to 13; and claim 32 supported at page 25, line 26. The new claims are believed to allowable separately for their limitations and for the same reasons as their base claims.

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Reconsideration and allowance of all claims is respectfully requested.

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